

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Quality of Newborn Care: A Health Facility Assessment in Rural Ghana Using Survey, Vignette and Surveillance Data
AUTHORS	Vesel, Linda; Manu, Alexander; Lohela, Terhi; Gabrysch, Sabine; Okyere, Eunice; ten Asbroek, Augustinus; Hill, Zelee; Tawiah, Charlotte; Owusu-Agyei, Seth; Kirkwood, Betty

VERSION 1 - REVIEW

REVIEWER	Edgardo Szyld MD Faculty Universidad Nacional de La Matanza
REVIEW RETURNED	27-Dec-2012

GENERAL COMMENTS	<p>This study seems to be an evaluation of the impact of a previous big intervention, the Newhints study. This should be clearly stated.</p> <p>The newhints study mentioned so many times along this manuscript is registered at trials.gov.under the reference NCT00623337, The Ghana Newborn Home Visits Neonatal Mortality Trial (Newhints) This reviewer hasn't found results or new information since 2010. In addition the description of the study is referred to as a home visit program. It is not expected to see a change in facilities after a home visit program. This conflict should be clarified by the authors. As part of the protocol published in Trials, the only related activities found by this reviewer have been two workshops, which this manuscript fails to mention in its references.</p> <p>Moreover, one of the key references is as follows:</p> <p>26. Kirkwood BR, Manu A, Asbroek AH, Soremekun S, Weobong B, Gyan T, et al. Impact of the "Newhints" home visits intervention on neonatal mortality and care practices in Ghana: a cluster randomised controlled trial. Submitted 2012.</p> <p>What makes it impossible for the reader to obtain any additional information about the results of the Newhints.</p> <p>This study is mainly a description of the facilities in a specific area. It is a survey of the available resources (human, drug and equipments) in the different health facilities and an assessment of the knowledge of the heads of the different centers.</p> <p>This reviewer suggests that the present study should be limited to</p>
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	<p>the above mentioned survey that provides very important and useful information.</p> <p>In addition to the survey, the authors include in the results sections (see below) several tables and results obtained from other studies and different sets of data. This reviewer considers this inappropriate and suggests eliminating all these complementary data.</p> <p>Specific comments:</p> <p>Quality of Newborn Care: A Health Facility Assessment in Rural Ghana Using Survey, Vignette and Surveillance Data</p> <p>The title does not accurately describe the characteristics of the study. This study is mainly a description of the facilities in a specific area. This is what the title should say.</p> <p>The introduction justifies adequately the present study.</p> <p>There is an inconsistency between the main document and the abstract</p> <p>The objective of the study is not clearly stated</p> <p>Page 5 "The neonatal mortality rate in the area is 32 per 1000 live births". The source of this information is not referenced.</p> <p>There is no statistics section where the data analysis strategy should be detailed.</p> <p>Page 6. There is lack of information about home deliveries, and they represent around 30% of this population. The duration of previous training is not mentioned, neither do they mention if the heads of the units participating in this survey have taken or not the above mentioned training.</p> <p>The authors describe a sampling in this manuscript. The way this sample was selected and justification of the sampling method are not included. In addition, it is not clear if the tool used for the observation is a validated one.</p> <p>Page 10. The indicators for the evaluation of the quality of care are well described but not well justified. The validation process of this tool is not described by the authors.</p> <p>Page 11. Ethics: even though the authors mention the ethics approval of the newhints study, this protocol does not include the HFA component. In addition there is not description about the informed consent for participants.</p> <p>Page 16 table, prevention of birth asphyxia, dexametasone?? Dexametasone is a drug universally used for the prevention of neonatal complications of prematurity such as RDS, NEC, IVH but</p>
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	<p>not birth asphyxia.</p> <p>The table 6, in page 19, describes only 11 centers, with a tool not described in the methods section. It is not clear what this table represents: is it another survey?</p> <p>Table 7 in page 21 shows results of the newhints study including a population of around 10 thousand newborns.</p> <p>Page 22 here the authors introduce a new set of data, including around 15 thousand babies. In addition, they introduce the term of quartiles of mothers without clarification of which variable is used for this distribution.</p>
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REVIEWER	Peter Waiswa, Lecturer, Makerere University School of Public Health, Uganda. I declare that i have no competing interest.
REVIEW RETURNED	03-Jan-2013

GENERAL COMMENTS	<p>This is an important and well written manuscript. However, there are improvements to make. The manuscript assesses facility capacity and attempts to link this to demand for facility birth and neonatal care. However, no linkage is made between facility capacity and the quality of care provided there. Did, for instance, facilities which were assessed as having good quality have better maternal and neonatal outcomes? in table 3, the authors show availability of basic infrastructure. They should clarify how these were measured/defined. This comment applies to other tables.</p> <p>On page 17, under "profile of Human Resources managing sick newborns" the authors say that most of the doctors and medical assistants were not present on the day of the visit. However, since health workers in hospitals work in shifts, it is only normal that not all could be present at the time of the assessment, unless they mean among those expected to be on duty that day. Most importantly, though, we need to know if those present had knowledge and skills in maternal and newborn care.</p> <p>On page 18, under vignette 2, the authors should provide more details on the number of staff involved, what proportion of those available were assessed, how the staff were selected. On the same page, it is not clear what is the relevance of an assessment of "delayed discharge for newly delivered babies. usually the problem in SSA is not delayed discharge but early discharge. Why should delayed discharge be an issue here in this assessment?</p> <p>Finally, under results, the authors should drop tables and figures (e.g figure 4) which do not link to the health facility assessment. Since this study was done in the context of an intervention: The Newhints, the discussion should be revised to reflect this fact. I</p>
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	<p>mean why do we get what is reported here despite an intervention? What was done right, what more needed to be done? I also think the major finding here should be about the capacity of health facilities in terms of their quality ranking and how this linked to their being utilised. Then a discussion of other findings can follow.</p> <p>Under strength and limitation, I think the study strength is not about Newhints but about the methods used in this particular assessment. I also failed to get the relevancy of the second paragraph under strengths and limitations to this particular to this manuscript. Finally, the authors could consider separating the conclusions/recommendations from the rest of the discussion section (i.e consider a separate sub-title).</p>
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VERSION 1 – AUTHOR RESPONSE

REVIEWER #1: Edgardo Szyld MD, Universidad Nacional de La Matanza

THANK YOU FOR YOUR COMMENTS AND SUGGESTIONS. THEY HAVE BEEN ADDRESSED BELOW AND ANY CHANGES HAVE BEEN MADE IN THE MANUSCRIPT USING TRACK CHANGES.

General Comments

This study seems to be an evaluation of the impact of a previous big intervention, the Newhints study. This should be clearly stated.

RESPONSE: THE LINK BETWEEN THE NEWHINTS INTERVENTION AND THE HEALTH FACILITY ASSESSMENT HAS BEEN CLARIFIED IN THE DOCUMENT ON PAGE 4-5 AND IN SOME OTHER SMALL PLACES. THE HEALTH FACILITY ASSESSMENT WAS NOT PART OF THE NEWHINTS INTERVENTION ITSELF NOR WAS IT INTENDED TO EVALUATE THE IMPACT OF THE NEWHINTS INTERVENTION.

NEWHINTS WAS AN INTEGRATED HOME VISITS INTERVENTION PACKAGE DELIVERED BY EXISTING COMMUNITY-BASED SURVEILLANCE VOLUNTEERS (CBSV), WHICH AIMED TO IMPROVE NEWBORN CARE PRACTICES, CARE-SEEKING AND NEONATAL SURVIVAL. CBSVS WERE TRAINED TO CONDUCT ANTENATAL AND POSTNATAL HOME VISITS. DURING ANTENATAL VISITS, CBSVS WERE TRAINED TO ENCOURAGE WOMEN TO DELIVER IN A FACILITY AND DEVELOP A BIRTH PREPAREDNESS PLAN. THE FIRST POSTNATAL HOME VISIT WAS SCHEDULED TO OCCUR WITHIN 24 HOURS OF DELIVERY OR AS SOON AS POSSIBLE THEREAFTER. DURING THIS VISIT, THE CBSV WAS TRAINED TO WEIGH AND EXAMINE THE BABY FOR DANGER SIGNS. IF A BABY WAS IDENTIFIED TO BE VERY LOW BIRTH WEIGHT (<1.5KG) OR HAVE ANY DANGER SIGN, THE CBSV WAS TRAINED TO REFER THE BABY AND MOTHER TO A HEALTH FACILITY.

AN ESSENTIAL NEWBORN CARE TRAINING WORKSHOP WAS CONDUCTED BY THE WORLD HEALTH ORGANIZATION, WHICH BROUGHT TOGETHER HEALTH FACILITY STAFF IN BOTH CONTROL AND INTERVENTION ZONES WHO TOOK DIRECT CARE OF SICK BABIES AS DESCRIBED IN THIS PAPER ON PAGE 6. THE AIM OF THIS TRAINING WAS TO ADDRESS INADEQUACIES IN THE PROVISION OF FACILITY NEWBORN CARE IDENTIFIED DURING FORMATIVE RESEARCH. INVESTIGATORS BELIEVED THAT A REFRESHER OF ESSENTIAL NEWBORN CARE SKILLS IN THE MAIN HEALTH FACILITIES WAS ESSENTIAL TO ACCOMMODATE THE ANTICIPATED INCREASED DEMAND FOR BIRTH AND REFERRAL SERVICES DURING THE NEWHINTS INTERVENTION TRIAL. ALL STAFF AND EVERY FACILITY WAS NOT REPRESENTED; ONLY THOSE WHO TOOK DIRECT CARE OF SICK BABIES WERE

TRAINED. THERE WAS NO INTENTION TO DO A BEFORE-AFTER ANALYSIS BASED ON THE KNOWLEDGE GAINED IN THIS SHORT COURSE. THE ONLY LINK IS THAT THIS PAPER LOOKS AT WHETHER THOSE WHO ATTENDED THE WORKSHOP AND HAVE THE KNOWLEDGE TO CARE FOR NEWBORN BABIES WERE ACTUALLY STILL PRESENT AT THEIR POSTS AT THE TIME OF THE HEALTH FACILITY ASSESSMENT. HEALTH FACILITIES WERE ONLY SENSITISED TO THE NEWHINTS INTERVENTION IN ORDER TO HARMONISE PROMOTION OF NEWBORN CARE BEHAVIOURS AND INTRODUCE THE NEWHINTS REFERRAL COMPONENT.

THUS, NEWHINTS HOPED TO CONTRIBUTE TO AN INCREASE IN FACILITY DELIVERY AND STRENGTHEN THE COMMUNITY REFERRAL SYSTEM FOR ILL AND SMALL BABIES. HOWEVER, IT DID NOT AIM TO IMPROVE THE STRUCTURAL CAPACITY OR QUALITY OF CARE PRESENT AT THE HEALTH FACILITIES SERVING THE WOMEN AND BABIES IN THE NEWHINTS STUDY (INTERVENTION AND CONTROL AREAS).

THE HEALTH FACILITY ASSESSMENT WAS CONDUCTED AFTER THE COMPLETION OF THE NEWHINTS INTERVENTION FROM JUNE TO DECEMBER 2010. THE NEWHINTS EVALUATION COHORT COMPRISED BIRTHS BETWEEN NOVEMBER 2008 AND DECEMBER 2009. THE FACILITY ASSESSMENT WAS CONDUCTED PRIMARILY TO EXAMINE THE QUALITY OF FACILITY NEWBORN CARE IN THE REGION AND TO ADDRESS THIS GAP IN EVIDENCE. THE GOVERNMENT IS COMMITTED TO IMPROVING NEONATAL MORTALITY (NEWHINTS WAS CONDUCTED AT SCALE WITHIN THE GHANA HEALTH SERVICE SYSTEM). IN ORDER FOR THIS GOAL TO BE ACHIEVED, NEWBORN CARE MUST BE IMPROVED AT THE COMMUNITY LEVEL, FACILITY LEVEL AND IN BETWEEN. THE NEWHINTS INTERVENTION AIMED TO ADDRESS THE COMMUNITY LEVEL AND THE LINK BETWEEN THE COMMUNITY AND FACILITY LEVELS (USING CBSVS TO ENCOURAGE FACILITY DELIVERY AND REFER BABIES). HOWEVER, IN ORDER FOR FACILITY BIRTHS TO RECEIVE ESSENTIAL NEWBORN CARE AND REFERRED BABIES TO BE EFFECTIVELY MANAGED AND TREATED IN FACILITIES, THESE FACILITIES NEED TO POSSESS THE PROPER STRUCTURAL CAPACITY AND HIGH QUALITY OF NEWBORN CARE. THIS PAPER ADDRESSES THESE COMPONENTS AND USES SURVEILLANCE DATA FROM THE NEWHINTS TRIAL TO LINK DEMAND (FACILITY DELIVERY AND ADMISSIONS) TO SUPPLY (STRUCTURAL CAPACITY AND QUALITY OF NEWBORN CARE) COMPONENTS. WE BELIEVE THAT THIS LINK IS AN ESSENTIAL COMPONENT IN ORDER TO AIM TO IMPACT THE QUALITY OF FACILITY NEWBORN CARE IN THIS REGION.

The newhints study mentioned so many times along this manuscript is registered at [trials.gov](https://www.clinicaltrials.gov/ct2/show/study?term=NCT00623337&rank=1) under the reference NCT00623337, The Ghana Newborn Home Visits Neonatal Mortality Trial (Newhints). This reviewer hasn't found results or new information since 2010.

RESPONSE: THE PAPER ON THE RESULTS OF THE IMPACT EVALUATION OF THE NEWHINTS TRIAL HAS BEEN ACCEPTED FOR PUBLICATION BY THE LANCET.

In addition the description of the study is referred to as a home visit program. It is not expected to see a change in facilities after a home visit program. This conflict should be clarified by the authors.

RESPONSE: PLEASE SEE THE RESPONSE TO THE FIRST COMMENT ABOVE. THE HEALTH FACILITY ASSESSMENT WAS NOT PART OF THE NEWHINTS TRIAL. THE NEWHINTS TRIAL INTENDED TO CHANGE CARE-TAKING AND CARE-SEEKING BEHAVIOURS FOR NEWBORNS AND IN TURN REDUCE NEONATAL MORTALITY. THE FACILITY SURVEY MERELY INVOLVED FACILITIES WITHIN THE AREA OF COVERAGE OF THE NEWHINTS INTERVENTION. MOREOVER, THERE WAS NO BASELINE SURVEY WITH THIS SERVING AS ENDLINE; THIS IS JUST A ONE –TIME ASSESSMENT.

As part of the protocol published in *Trials*, the only related activities found by this reviewer have been two workshops, which this manuscript fails to mention in its references.

RESPONSE: PLEASE SEE REVISED PARAGRAPH 1 ON PAGE 6.

Moreover, one of the key references is as follows:

26. Kirkwood BR, Manu A, Asbroek AH, Soremekun S, Weobong B, Gyan T, et al.

Impact of the "Newhints" home visits intervention on neonatal mortality and care practices in Ghana: a cluster randomised controlled trial. Submitted 2012.

What makes it impossible for the reader to obtain any additional information about the results of the Newhints.

RESPONSE: THIS PAPER HAS BEEN ACCEPTED FOR PUBLICATION BY THE LANCET AND IS IN PRESS AS MENTIONED ABOVE.

This study is mainly a description of the facilities in a specific area. It is a survey of the available resources (human, drug and equipments) in the different health facilities and an assessment of the knowledge of the heads of the different centers. This reviewer suggests that the present study should be limited to the above mentioned survey that provides very important and useful information. In addition to the survey, the authors include in the results sections (see below) several tables and results obtained from other studies and different sets of data. This reviewer considers this inappropriate and suggests eliminating all these complementary data.

RESPONSE: THANK YOU FOR YOUR COMMENT. HOWEVER, WE STRONGLY BELIEVE THAT ONE OF THE STRENGTHS OF THIS PAPER AND ABILITY FOR IT TO BE TRANSLATED TO POLICY/ CREATE POSITIVE CHANGE IN THIS REGION IS THAT IT LINKS SUPPLY AND DEMAND SIDE COMPONENTS OF FACILITY NEWBORN CARE. IT IS VERY IMPORTANT TO KNOW WHICH FACILITIES HAVE THE MOST DELIVERIES, WHICH ARE RECEIVING THE MOST ADMISSIONS AND HOW DEMAND LINKS TO THE QUALITY OF THE SERVICES THAT THESE FACILITIES ARE ABLE TO PROVIDE. WE LOOK AT THIS WITH AN EQUITY LENSE BY EVALUATING DEMAND BY SOCIO-ECONOMIC STATUS. NEWHINTS DID NOT SPECIFICALLY COLLECT DATA WITHIN HEALTH FACILITIES AND IT WAS NOT POSSIBLE TO EVALUATE ESSENTIAL NEWBORN CARE PRACTICES DURING THE VISITS TO TH FACILITIES CONDUCTED AS PART OF THE ASSESSMENT. THEREFORE, WE USED ESSENTIAL NEWBORN CARE PRACTICES OF MOTHERS WHO DELIVERED IN THESE FACILITIES AS PROXIES FOR ESENTIAL NEWBORN CARE PERFORMED IN THESES FACILITIES SINCE HEALTH FACILITY STAFF ARE THE ONES WHO ARE RESPONSIBLE FOR PROVIDING ESSENTIAL NEWBORN CARE BEHAVIOURS. MOTHERS ARE TO BE DISCHARGED ONLY WHEN THEY HAVE DISPLAYED COMPETENCE TO TAKE CARE OF THEIR BABIES. IF FACILITY STAFF DO NOT PRACTICE AND ENDORSE THESE BEHAVIOURS, THEN IT WILL BE DIFFICULT FOR THEM TO BECOME UNIVERSALLY ADOPTED IN THE COMMUNITY AND FACILITY.

Specific Comments

Quality of Newborn Care: A Health Facility Assessment in Rural Ghana Using Survey, Vignette and Surveillance Data. The title does not accurately describe the characteristics of the study. This study is mainly a description of the facilities in a specific area. This is what the title should say.

RESPONSE: THE PAPER IS MEANT TO ASSESS THE QUALITY OF NEWBORN CARE IN HEALTH FACILITIES WITHIN THE BRONG AHAFO REGION OF RURAL GHANA. ROUTINELY, THIS HAS BEEN DONE BY LOOKING AT JUST THE SUPPLY SIDE THROUGH SURVEYS AND INVENTORIES TO DESCRIBE WHAT FACILITIES AND RESOURCES ARE AVAILABLE IN FACILITIES. OTHERS DESCRIBE ONLY THE DEMAND SIDE LOOKING AT EXPERIENCES OF USERS THROUGH EXIT INTERVIEWS ETC. THIS PAPER USES A DIFFERENT APPROACH AND SYNERGISES THE STRENGTH IN USING BOTH METHODS BY COMBINING THEM IN ONE PIECE OF WORK. FOR INSTANCE, THE SUPPLY SIDE COMPONENTS WERE ADDRESSED THROUGH A HEALTH FACILITY ASSESSMENT USING A STANDARD SURVEY QUESTIONNAIRE AND VIGNETTES. THIS WAS LINKED TO DEMAND FOR SERVICES (ASSESSED USING

SURVEILLANCE DATA FROM USERS OF THE FACILITY SERVICES).

The introduction justifies adequately the present study.

RESPONSE: THANK YOU.

There is an inconsistency between the main document and the abstract

RESPONSE: WE HAVE MADE REVISIONS AND THIS SHOULD NOW BE CONSISTENT.

The objective of the study is not clearly stated

RESPONSE: THE LAST PARAGRAPH ON PAGE 4 HAS BEEN RESTRUCTURED TO CLARIFY THE OBJECTIVE.

Page 5 "The neonatal mortality rate in the area is 32 per 1000 live births". The source of this information is not referenced.

RESPONSE: THIS HAS BEEN CHANGED TO 31 PER 1000 LIVE BIRTHS AND THE PROTOCOL PAPER HAS BEEN CITED: KIRKWOOD BR, MANU A, TAWIAH-AGYEMANG C, TEN ASBROEK A, GYAN T, WEOBONG B, ET AL. NEWHINTS CLUSTER RANDOMISED TRIAL TO EVALUATE THE IMPACT ON NEONATAL MORTALITY IN RURAL GHANA OF ROUTINE HOME VISITS TO PROVIDE A PACKAGE OF ESSENTIAL NEWBORN CARE INTERVENTIONS IN THE THIRD TRIMESTER OF PREGNANCY AND THE FIRST WEEK OF LIFE: TRIAL PROTOCOL. TRIALS 2010;11:58.

There is no statistics section where the data analysis strategy should be detailed.

RESPONSE: THANKS FOR THE OBSERVATION. WE HAVE ADDED A SHORT DATA ANALYSIS SECTION JUST BEFORE THE ETHICAL APPROVAL PARAGRAPH ON PAGE 11.

Page 6. There is lack of information about home deliveries, and they represent around 30% of this population.

RESPONSE: THIS PAPER DOES NOT AIM TO ADDRESS HOME DELIVERIES. WE ASSESSED FACILITY DELIVERIES ONLY IN ORDER TO LINK DEMAND FOR FACILITY NEWBORN CARE WITH SUPPLY SIDE COMPONENTS FROM THE SURVEY.

The duration of previous training is not mentioned, neither do they mention if the heads of the units participating in this survey have taken or not the above mentioned training.

RESPONSE: MORE DETAILS HAVE BEEN ADDED ON PAGE 6 ABOUT THE ESSENTIAL NEWBORN CARE TRAINING. IT WAS FOR FOUR DAYS IN TWO CONCURRENT SESSIONS AT NKORANZA AND TECHIMAN HOSPITALS. THE SECTION ON PAGE 17 STATES THE NUMBER OF HEALTH PERSONNEL NOW PRESENT IN THE UNITS WHO PARTICIPATED IN THE TRAINING.

The authors describe a sampling in this manuscript. The way this sample was selected and justification of the sampling method are not included.

RESPONSE: THERE ARE A TOTAL OF 86 FACILITIES IN THE SEVEN DISTRICTS, 64 OF WHICH PERFORM DELIVERIES (PAGE 5). THUS, THE STUDY INCLUDED ALL THE FACILITIES THAT WERE SAID TO BE CONDUCTING DELIVERIES FOR THIS SURVEY. THE TYPES OF FACILITIES ARE DESCRIBED ON PAGE 5. THE ELEVEN FACILITIES, AT WHICH MORE INDEPTH DATA WAS COLLECTED, WERE PURPOSIVELY SAMPLED WITH RATIONALE AS DESCRIBED ON PAGE 6-7. THESE ELEVEN FACILITIES WERE THE FOUR MAIN DISTRICT HOSPITALS, AND A PURPOSIVE SAMPLE OF OTHER FACILITIES FOCUSING ON THE LARGEST; THESE WERE, ONE OF THE TWO NEW (OTHER) DISTRICT HOSPITALS, THE LARGEST PRIVATE HOSPITAL, TWO OF THE THREE LARGEST MATERNITY HOMES AND THREE OF THE FIVE LARGEST HEALTH CENTRES.

In addition, it is not clear if the tool used for the observation is a validated one.

RESPONSE: THE TOOL HAS NOT BEEN VALIDATED, BUT IT IS BASED ON AN INTERNATIONALLY ACCEPTED DOCUMENT FROM THE WHO PROVIDING GUIDELINES FOR CARE MATERNAL, NEWBORN AND INFANT CARE (THE WHO'S PREGNANCY, CHILDBIRTH, POSTPARTUM AND NEWBORN CARE (PCPNC) GUIDELINES) AND OTHER TOOLS SUCH AS THE WHO SIGNAL FUNCTIONS FOR EMERGENCY OBSTETRIC CARE PAPER WRITTEN BY SABINE GABRYSCH AND COLLEAGUES (GABRYSCH S, CIVITELLI G, EDMOND KM, MATHAI M, ALI M, BHUTTA ZA, ET AL. NEW SIGNAL FUNCTIONS TO MEASURE THE ABILITY OF HEALTH FACILITIES TO PROVIDE ROUTINE AND EMERGENCY NEWBORN CARE. PLOS MED 2012;9(11):E1001340). THE VIGNETTE WEIGHTS WERE REVIEWED BY 16 PHYSICIANS/NEWBORN HEALTH SPECIALISTS.

Page 10. The indicators for the evaluation of the quality of care are well described but not well justified.

RESPONSE: THE INDICATORS FOR THE QUALITY OF NEWBORN CARE WERE BASED ON AND DERIVED TO CONFORM WITH THE FAMOUS CLASSIFICATION DEFINED BY DONABEDIAN WHICH LOOKED AT THE FOLLOWING AMONG OTHER THINGS: (1) STRUCTURE, CHARACTERISTICS OF THE SETTING IN WHICH CARE IS ADMINISTERED; AND (2) PROCESS, THE ESSENTIAL PROCEDURES IN THE DELIVERY OF CARE. THE INVESTIGATORS THEREFORE RECOGNISED THE INSEPARABLE INTER-RELATIONSHIP BETWEEN THE STRUCTURE AND THE PROCESSES AS THE SUPPLY SIDE COMPONENT OF QUALITY OF NEWBORN CARE AND CHOSE ITEMS AND QUESTIONS IN THE SURVEY INSTRUMENTS TO PROVIDE THE KEY INDICATORS TO ADDRESS THESE.

The validation process of this tool is not described by the authors.

RESPONSE: THIS HAS BEEN DISCUSSED ABOVE.

Page 11. Ethics: even though the authors mention the ethics approval of the Newhints study, this protocol does not include the HFA component.

RESPONSE: THE HFA WAS SUBMITTED AND APPROVED SEPARATELY.

In addition there is not description about the informed consent for participants.

RESPONSE: INFORMATION ON INFORMED CONSENT HAS BEEN ADDED TO THE ETHICAL APPROVAL PARAGRAPH ON PAGE 11.

Page 16 table, prevention of birth asphyxia, dexametasone?? Dexametasone is a drug universally used for the prevention of neonatal complications of prematurity such as RDS, NEC, IVH but not birth asphyxia.

RESPONSE: THANK YOU FOR THE COMMENT. DEXAMTHASONE IS USED PERI-PARTUM (WITHIN 24 HOURS OF DELIVERY) TO AID IN LUNG MATURATION OF PRETERM FOETUSES TO PREVENT NEONATAL COMPLICATIONS SUCH AS RDS AS YOU RIGHTLY POINTED OUT. THE CORRECTION HAS BEEN MADE IN THE TABLE.

The table 6, in page 19, describes only 11 centers, with a tool not described in the methods section. It is not clear what this table represents: is it another survey?

RESPONSE: YES. THESE FACILITIES WERE DESCRIBED IN THE METHODS SECTION ON PAGE 6-7. BASED ON THE CRITERIA FOR THEIR SELECTION, MORE DETAILED DATA WERE COLLECTED FROM THESE FACILITIES TO SHED MORE LIGHT ON THE HIGHEST QUALITY OF CARE THAT WAS AVAILABLE WITHIN THE CATHCHMENT AREA.

Table 7 in page 21 shows results of the Newhints study including a population of around 10 thousand newborns. Page 22 here the authors introduce a new set of data, including around 15 thousand

babies.

RESPONSE: THIS HAS BEEN CLARIFIED ON PAGE 21. 15884 LIVE BIRTHS OCCURRED BETWEEN NOVEMBER 2008 AND DECEMBER 2009: 32.1% WERE BORN AT HOME AND 67.9% IN HEALTH FACILITIES. OF THESE LIVE BIRTHS, 10343 BABIES BORN IN FACILITIES SURVIVED THE FIRST DAY AND HAD DATA ON INITIATION OF BREASTFEEDING AND DELAYED BATHING.

In addition, they introduce the term of quartiles of mothers without clarification of which variable is used for this distribution.

RESPONSE: WE REFER TO SOCIO-ECONOMIC QUINTILES. THESE ARE BASED ON AN ASSET INDEX CALCULATED USING PRINCIPAL COMPONENTS ANALYSIS OF A LIST OF HOUSEHOLD ASSETS COLLECTED FROM WOMEN DURING PREGNANCY. THE ASSET SCORES WERE RANKED AND DIVIDED INTO QUINTILES.

REVIEWER #2: Peter Waiswa, Lecturer, Makerere University School of Public Health, Uganda.

This is an important and well-written manuscript. However, there are improvements to make.

RESPONSE: THANK YOU FOR YOUR COMMENTS AND SUGGESTIONS. THEY HAVE BEEN ADDRESSED BELOW AND ANY CHANGES HAVE BEEN MADE IN THE MANUSCRIPT USING TRACK CHANGES.

The manuscript assesses facility capacity and attempts to link this to demand for facility birth and neonatal care. However, no linkage is made between facility capacity and the quality of care provided there. Did, for instance, facilities which were assessed as having good quality have better maternal and neonatal outcomes?

RESPONSE: UNFORTUNATELY, WE WERE NOT ABLE TO ASSESS MATERNAL AND NEONATAL OUTCOMES IN ALL OF THESE FACILITIES AS PART OF THIS ASSESSMENT. WE THEREFORE USED STRUCTURAL AND PROCESS INDICATORS TO ASSESS QUALITY RATHER THAN OUTCOME INDICATORS. PLEASE SEE THE FOLLOWING PARAGRAPH IN THE DISCUSSION SECTION ON PAGE 26: "OUTCOME INDICATORS OF QUALITY DEFINED BY DONABEDIAN AS "THE EFFECTS OF CARE ON HEALTH STATUS OF PATIENTS," SUCH AS NEONATAL MORTALITY AND MATERNAL PERCEPTIONS OF CARE, WERE NOT INVESTIGATED IN THIS ANALYSIS. HOWEVER, OUTCOME INDICATORS OF QUALITY OF CARE ARE OFTEN DIFFICULT TO EVALUATE SINCE THEY CAN BE AFFECTED BY MULTIPLE OTHER FACTORS INCLUDING MORE SEVERE CASES BEING SEEN AT HIGHER LEVEL FACILITIES BESIDES CARE ADMINISTERED AT A HEALTH FACILITY."

In table 3, the authors show availability of basic infrastructure. They should clarify how these were measured/defined. This comment applies to other tables.

RESPONSE: ALL PIECES OF INFRASTRUCTURE ARE IDENTIFIED INDIVIDUALLY IN EACH TABLE. WE ASKED IF EACH ITEM WAS ALWAYS AVAILABLE AND SOUGHT PERMISSION TO OBSERVE THINGS LIKE SOAP FOR HANDWASHING AND FRIDGE FOR STORAGE.

On page 17, under "profile of Human Resources managing sick newborns" the authors say that most of the doctors and medical assistants were not present on the day of the visit. However, since health workers in hospitals work in shifts, it is only normal that not all could be present at the time of the assessment, unless they mean among those expected to be on duty that day.

RESPONSE: YES IT IS AMONG THOSE EXPECTED TO BE ON DUTY OF THOSE 30 DOCTORS AND 44 MIDWIVES/NURSES WHO WERE IDENTIFIED TO BE CAPABLE OF MANAGING NEWBORN ILLNESS. THE SURVEYS WERE CARRIED OUT DURING THE DAY. MOST

FACILITIES IN THE STUDY AREA RAN AT FULL CAPACITY DURING THE DAY AND LEFT ONLY SKELETAL STAFF TO COVER THE NIGHT SHIFTS. THIS WAS THEREFORE THE SITUATION THAT A SICK NEWBORN WAS LIKELY TO ENCOUNTER IF THEY WENT TO THESE FACILITIES TO ACCESS CARE ON THE DAY OF THE ASSESSMENT.

Most importantly, though, we need to know if those present had knowledge and skills in maternal and newborn care.

RESPONSE: KNOWLEDGE AND SKILLS IN NEWBORN CARE WERE ASSESSED THROUGH THE VIGNETTES. MATERNAL CARE IS NOT REPORTED IN THIS PAPER, BUT IT WAS PART OF THE SURVEY/VIGNETTE EXERCISE AND WILL BE REPORTED IN A SEPARATE PAPER. ONLY ONE PERSON WAS INTERVIEWED PER FACILITY DUE TO TIME CONSTRAINTS, THE NATURE OF THIS EXERCISE AND THE NUMBER OF FACILITIES SURVEYED. THE RESPONDENT WAS THE HEAD OF THE FACILITY'S JOINT MATERNITY/NEWBORN WARD, OR THE MOST SENIOR NURSE/MIDWIFE AVAILABLE AT THE TIME OF THE INTERVIEW. THIS PERSON WAS ACKNOWLEDGED TO BE THE MOST KNOWLEDGEABLE AND HIGHLY TRAINED INDIVIDUAL CURRENTLY CARING FOR NEWBORNS AND MANAGING OTHER STAFF. THE RESPONDENTS' ANSWERS ARE MEANT TO REPRESENT THE BEST KNOWLEDGE AND HIGHEST QUALITY OF CARE AVAILABLE IN THE FACILITY.

On page 18, under vignette 2, the authors should provide more details on the number of staff involved, what proportion of those available were assessed, how the staff were selected.

RESPONSE: FOR EACH VIGNETTE, THE SAMPLING PROCEDURE WAS THE SAME AS DESCRIBED IN THE METHODS SECTION. ONE INTERVIEW WAS CARRIED OUT IN EACH FACILITY WITH EITHER THE HEAD OF THE FACILITY'S JOINT MATERNITY/NEWBORN WARD, OR WITH THE MOST SENIOR NURSE/MIDWIFE AVAILABLE AT THE TIME OF THE INTERVIEW.

On the same page, it is not clear what is the relevance of an assessment of "delayed discharge for newly delivered babies. Usually the problem in SSA is not delayed discharge but early discharge. Why should delayed discharge be an issue here in this assessment?

RESPONSE: THIS IS EXACTLY WHAT THE SURVEY WAS LOOKING AT AND NOT TO SAY DELAYED DISCHARGE WAS AN ISSUE. THE ISSUE WAS WHETHER THEY EVER DELAY THE DISCHARGE OF BABIES FROM THE FACILITIES AND UNDER WHAT CIRCUMSTANCES. THE AIM WAS TO ASSESS WHETHER THESE HEALTH WORKERS DO RECOGNISE THAT EVEN THOUGH IT WAS A COMMON PRACTICE TO DISCHARGE BABIES EARLY, WHEN DANGER SIGNS ARE PRESENT, THEIR DISCHARGE SHOULD BE DELAYED. DELAYED DISCHARGE WAS DISCUSSED IN THIS PAPER MAINLY BECAUSE NEWBORNS WITH THE DANGER SIGNS DESCRIBED ON PAGE 19 AND IN TABLE 6 SHOULD NOT BE DISCHARGED IMMEDIATELY AFTER BIRTH BUT SHOULD BE TREATED AND MANAGED FOR A LONGER PERIOD OF TIME. THIS QUESTION WAS INCLUDED BECAUSE IT IS ESSENTIAL THAT HEALTH FACILITY STAFF KNOW WHICH SIGNS REQUIRE NEWBORNS TO BE TREATED, MANAGED OR REFERRED.

Finally, under results, the authors should drop tables and figures (e.g figure 4) which do not link to the health facility assessment.

RESPONSE: WE BELIEVE THAT THESE FIGURES AND TABLES ARE VALID AND NECESSARY IN ORDER TO ILLUSTRATE THE DEMAND FOR FACILITY NEWBORN CARE AND TO FORM A LINKAGE TO QUALITY AND STRUCTURAL CAPACITY. IN ORDER FOR THIS EXERCISE AND PAPER TO HAVE AN IMPACT ON NEWBORN CARE IN THIS REGION, SUCH A LINKAGE IS VITAL.

Since this study was done in the context of an intervention: The Newhints, the discussion should be revised to reflect this fact. I mean why do we get what is reported here despite an intervention? What was done right, what more needed to be done?

RESPONSE: AS EXPLAINED IN EARLIER RESPONSES, THIS SURVEY WAS NOT PART OF THE NEWHINTS INTERVENTION. THE NEWHINTS INTERVENTION WAS NOT DESIGNED TO IMPACT STRUCTURAL CAPACITY OF QUALITY OF FACILITY NEWBORN CARE. IT WAS A COMMUNITY-BASED INTERVENTION AND STRENGTHENED LINKAGES WITH FACILITIES BUT DID NOT INTERVENE IN FACILITIES. THIS STUDY WAS PERFORMED IN THE NEWHINTS TRIAL AREA AFTER NEWHINTS WAS COMPLETED. SURVEILLANCE DATA, COLLECTED AS PART OF NEWHINTS, WAS USED TO ASSESS DEMAND AND TO SHOW WHETHER OR NOT FACILITIES WERE PRACTICING ESSENTIAL NEWBORN CARE. THIS HAS BEEN CLARIFIED IN THE INTRODUCTION AND METHODS SECTIONS OF THIS MANUSCRIPT.

I also think the major finding here should be about the capacity of health facilities in terms of their quality ranking and how this linked to their being utilised. Then a discussion of other findings can follow.

RESPONSE: WE AGREE WITH YOU, THIS WAS OUR INTENTION. WE ARE LOOKED AT WHAT QUALITY OF CARE FACILITIES DELIVER WHEN THEY ARE BEING UTILIZED.

Under strength and limitation, I think the study strength is not about Newhints but about the methods used in this particular assessment.

RESPONSE: IN THE STRENGTHS WHAT WE ARE HIGHLIGHTING IS THE FACT THAT THIS STUDY EVALUATES THE QUALITY OF FACILITY NEWBORN CARE, A BIG GAP IN NEWBORN CARE RESEARCH AND KEY COMPONENT TO IMPROVING NEONATAL SURVIVAL. THE OTHER STRENGTH IS THAT GIVEN ALL THE WORK TO INCREASE DEMAND THROUGH THE NATIONAL HEALTH INSURANCE, REFERRAL SYSTEM AND CARESEEKING ESTABLISHED THROUGH NEWHINTS, THIS PAPER ASSESS THE SUPPLY-SIDE OF THESE ACCOMPLISHMENTS. IT IS NOT NEWHINTS THAT WE ARE HIGHLIGHTING AS A STRENGTH. THE METHODS HAVE NOT BEEN HIGHLIGHTED AS A STRENGTH SINCE WE HAVE NOT BEEN ABLE TO COMPARE OUR TOOL TO OTHERS.

I also failed to get the relevancy of the second paragraph under strengths and limitations to this particular to this manuscript.

RESPONSE: THIS PARAGRAPH ADDRESSES PROVIDER AND USER PERCEPTIONS OF QUALITY OF CARE, WHICH ARE USED BY MANY RESEARCHERS ASSESSING THE QUALITY OF CARE. WE WANTED TO HIGHLIGHT THE FACT THAT THIS INFORMATION IS AVAILABLE FOR THE WOMEN AND BABIES USING THE HEALTH FACILITIES IN THIS AREA AND THE PROVIDERS CARING FOR THEM. THIS IS ADDRESSED INDEPTH IN A SEPARATE PAPER.

Finally, the authors could consider separating the conclusions/recommendations from the rest of the discussion section (i.e consider a separate sub-title).

RESPONSE: THANK YOU FOR THE SUGGESTION. WE HAVE ADDED A SUB-HEADING (CONCLUSION) ABOVE THE LAST PARAGRAPH.

VERSION 2 – REVIEW

REVIEWER	Edgardo Sztyld MD Faculty Universidad Nacional de la Matanza, Buenos Aires Argentina
REVIEW RETURNED	18-Feb-2013

THE STUDY	There is still lacking a more detailed description about the statistics calculation. the authors only describe how the compared the data but not which statistical analysis or calculation was used.
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VERSION 2 – AUTHOR RESPONSE

REVIEWER #1: Edgardo Szyld MD, Universidad Nacional de La Matanza

Comment: There is still lacking a more detailed description about the statistics calculation. The authors only describe how they compared the data but not which statistical analysis or calculation was used.

Response: THANK YOU FOR ACCEPTING OUR PREVIOUS RESPONSES AND FOR DEVOTING TIME AND ATTENTION TO CAREFULLY REVIEWING OUR MANUSCRIPT. THE ONLY STATISTICAL TEST USED WAS THE TEST FOR ASSOCIATIONS, WHICH WAS DONE BY PERFORMING CROSS TABULATIONS IN STATA 11. THIS PIECE OF INFORMATION HAS BEEN ADDED TO THE DATA ANALYSIS PARAGRAPH ON PAGE 12 OF THE MANUSCRIPT. AS DESCRIBED, THE ANALYSES INVOLVED SIMPLE AND CROSS TABULATIONS AS WELL AS THE CREATION OF SCATTERPLOTS TO DISPLAY THE RESULTS. FURTHER ADVANCED STATISTICAL TESTS OR CALCULATIONS WERE NOT USED TO CONDUCT THE DATA ANALYSIS FOR THIS PAPER.